

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

**We Claim:**

1-23 (Canceled)

24. (Previously presented) An illumination system comprising: an array of one or more light-emitting sources located in a source plane; a first optical sheet, separated from the source array by a first propagation distance; a first illumination plane separated from said first optical sheet by a second propagation distance; a second optical sheet located at said first illumination plane; and a second illumination plane separated from said first illumination plane, so as to provide substantially uniform intensity output profile, within the illuminated area, versus position across said first illumination plane and to provide substantially uniform intensity output profile versus position across said second illumination plane as well as versus angle within the illuminated area of said second illumination plane, wherein the said optical sheets are light homogenizing optical sheets, each comprising a substantially constant thickness sheet made of transparent material with front and back surfaces, each said front and back surface including a microlens array formed thereon, said microlens array each including a plurality of non-hemispherical microlenses each aligned and registered with a non-hemispherical microlens on an opposite said front and back surfaces, said optical sheet having a sufficient thickness so that said microlenses on opposite said front and back surfaces are separated by a distance substantially equal to the focal length of said microlenses.

1 25. (Previously presented) The illumination system as recited in Claim 24, wherein at least  
2 one optical sheet is a tailored optical sheet, wherein the aligned and registered microlens  
3 arrays on said front and back surfaces have non-equal pitch, such that exit cones angles are  
4 dependent on position across the optical sheet and are allowed to overlap substantially at an  
5 illumination plane.

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7 26. (Previously presented) The illumination system as recited in Claim 24, wherein at least  
8 one optical sheet is a tailored optical sheet, wherein the registered microlens arrays on said  
9 front and back surfaces have equal pitch and are transversely aligned, such that exit cones  
10 angles exhibit a constant, yet non-normal, exiting angle versus position across the optical  
11 sheet.

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13 27. (Previously presented) The illumination system as recited in Claim 24, further including:  
14 an optical system disposed between said source plane and said first optical sheet so as to  
15 collimate said sources of the source array; an optical system disposed between said first  
16 optical sheet and said second optical sheet so as to condense a substantially top-hat intensity  
17 profile versus position across the plane of said second optical sheet; and an optical system  
18 disposed between said second optical sheet and said second illumination plane so as to  
19 provide a substantially top-hat intensity profile versus position across said second  
20 illumination plane, as well as versus angle  $\alpha_3$  within the illuminated area.

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22 28. (Previously presented) The illumination system as recited in Claim 27 wherein the tiling  
23 patterns of the first light homogenizing optical sheet and the second light homogenizing

1 optical sheet are not the same, such that a uniform top-hat intensity profile exhibiting x/y  
2 plane shape due to the tiling pattern of the light homogenizing sheet in plane  $x_2$  is formed at  
3 plane  $x_3$ , while the output exit cone shape emanating from plane  $x_3$  exhibits shape due to the  
4 tiling pattern of the light homogenizing sheet in plane  $x_1$ .

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6 29. (Canceled)  
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